



## **Air Quality Statement of Basis**

Tier II Operating Permit No. T2-020312

Idaho Minerals LLC, Malad City, Idaho

**AIRS Facility No. 071-00008**

*Prepared by:*

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*Air Quality Division*

August 18, 2003

**FINAL PERMIT**

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## ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
CO	carbon monoxide
CFR	Code of Federal Regulations
DEQ	Department of Environmental Quality
EPA	Environmental Protection Agency
dscf	dry standard cubic feet
gr	grain (1 lb = 7,000 grains)
HAPs	hazardous air pollutants
IM	Idaho Minerals, LLC
ISCST	Industrial Source Complex Source Terrain
JBR	JBR Environmental
IDAPA	A number designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
MACT	Maximum Available Control Technology
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
O&M	Operations & Maintenance
PM	particulate matter
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PTC	permit to construct
SIC	Standard Industrial Classification
SO <sub>2</sub>	sulfur dioxide
TAP	toxic air pollutant
THAP	Total Hazardous Air Pollutant
T/yr	tons per year
UTM	Universal Transverse Mercator
VOC	volatile organic compound

## PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01 Section 404.04, *Rules for the Control of Air Pollution in Idaho (Rules)*.

## PROJECT DESCRIPTION

On July 10, 2002, Idaho Minerals, LLC (IM) requested from the Department of Environmental Quality (DEQ) to renew the facility's existing Tier II Operating Permit No. 071-00008, which expired on February 28, 2001. Included were IM's request from IM to modify the current Permit Conditions 1.1, 1.3, 3.3, and 3.4 regarding replacing the facility's expander baghouse. The emissions sources at the facility are listed in Table 1.1.

Table 1.1 Emissions Sources

Source Description	Control Device
<b>FACILITY-WIDE CONDITIONS</b>	
<b><u>ORE UNLOADING SYSTEM</u></b> Sized and dried perlite ore is delivered to the facility in covered trucks. The ore is discharged into a hopper where it is fed to an elevating belt conveyor. The elevating belt conveyor discharges the ore on a traveling belt which can be moved so the discharge is located over the proper silo. The different ore grades are stored in six identical silos.	PM emissions are controlled by the ore unloading baghouse with a control efficiency of 99.9%.
<b><u>ORE RECLAIM AND EXPANDING SYSTEMS</u></b> The ore is reclaimed from the silo using a belt conveyor from the bottom of the silo to a cross conveyor. The cross conveyor discharges on to a reclaim belt delivering the ore to the ore surge bin. The ore is fed to an elevator through a vibratory feeder.  The elevator carries the ore to ore distribution pipes at the top of the expander. The expander is fired with propane and maintains a temperature of about 1,700 °F. The flame softens the ore and the internal moisture expands the ore 10-20 times the original size. The expanded perlite is air cooled and collected in the primary product collector, which is a cyclone that separates the expanded perlite from the cooler separator which acts as a separator of the fines from the coarse aggregates. The coarse aggregates are collected in the coarse product packer. The fines are carried to the baghouse which separates the perlite fines from the air stream which is discharged to the atmosphere via the expander baghouse. Fine product passes through a rotary valve then to the fine product packer. Expander baghouse fines are collected in the baghouse fines packer via a rotary airlock.	PM emissions are controlled by the expander baghouse with a control efficiency efficiency of 99.9%.
<b><u>FUGITIVE SOURCES</u></b> Ore unloading, ore reclaim, and unpaved roads.	

## FACILITY DESCRIPTION

Idaho Minerals located in Malad City, Idaho, is a perlite expanding plant manufacturing horticultural medium, insulating wall fill, cryogenic insulation, and other expanded perlite products. The plant consists of crude ore unloading equipment, ore storage silos, perlite expanding equipment, warehouse, and offices. The perlite expanding plant is described in the facility's Tier II operating permit application, which was received on November 19, 2002, and summarized in the paragraph below.

Perlite ore is delivered to the facility by covered trucks that unload the material into a concrete hopper (1). The ore flows from the hopper to the No. 1 unloading conveyor (2) then to the No. 2 unloading conveyor (3) which is a traveling belt so it can be moved on tracks to position the discharge over the proper silo. Crude ore is stored in six steel silos (4). The No. 5 reclaim conveyor (5) is fed by the silo discharge conveyor (25) and delivers ore to the No. 6 reclaim conveyor (6) which leads to the expander surge bin (7). The expander vibratory feeder (8) receives the ore from the surge bin and delivers it to the elevator (9). The elevator carries the ore to the ore distribution pipes at the top of the expander (10) which is fired with propane gas and maintains a temperature of approximately 1,700 °F. The flame softens the ore and the internal moisture expands the ore 10-20 times the original size. The expanded perlite is cooled by air and collected in the primary product collector (11) which is a cyclone that

separates the expanded perlite from the cooler separator (13) which acts as a separator of the fines from the coarse aggregates. The coarse aggregates are collected in the coarse product packer (26). The fines are carried to the baghouse which separates the perlite fines from the air stream which is discharged to the atmosphere via the expander baghouse (17). Fine product passes through a 10" rotary valve (16) then to the fine product packer (26). Expander baghouse fines are collected in the baghouse fines packer via an 8" rotary airlock (19). A process flow diagram is in Appendix B of this memo.

## SUMMARY OF EVENTS

July 10, 2002	DEQ received a letter from Idaho Minerals requesting to renew the facility's Tier II operating permit that expired on February 21, 2001.
August 1, 2002	DEQ issued an incompleteness letter to IM.
November 19, 2002	DEQ received a Tier II operating permit application from IM.
December 12, 2002	DEQ received the emission inventory and production limits for IM from the facility's consultant (JBR Environmental [JBR]).
December 13, 2002	The Tier II operating permit application was determined complete.
January 8, 2003	IM submitted an addendum to the Tier II operating permit application.
January 28, 2003	DEQ sent IM a letter requesting an applicability determination for NSPS Subpart OOO
March 11, 2003	DEQ received a response from IM regarding the NSPS applicability
May 23, 2003	A public comment period started on May 23 and ended on June 23, 2003. Comments and responses are included in Appendix E of this memo.

## PERMIT HISTORY

February 20, 1996	DEQ issued Tier II Operating Permit No. 071-00008 to National Perlite Products Company.
September 20, 1999	IM was named as the new owner of the National Perlite Products Company located in Malad City, Idaho.

## TECHNICAL ANALYSIS

### *Emission Estimates and Related Permit Requirements*

Emission estimates were provided by IM in the Tier II operating permit application that was submitted to DEQ on November 19, 2002. Appendix A of this technical analysis contains the emission rates for the criteria air pollutant emissions that were submitted by JBR Environmental. Emissions of perlite, a toxic air pollutant (TAP), were also estimated by JBR Environmental and it is assumed that all PM emissions are perlite. The TAP emissions from the propane combustion were not evaluated because the potential to emit of any TAP from the propane combustion are minimal. Emissions calculations submitted within the application were checked for accuracy by Dan Pitman, PE, Staff Engineer, in DEQ's Division of Technical Services. The PM and PM<sub>10</sub> emission calculations from the perlite processing plant were based on engineering judgment. DEQ estimated the annual PM and PM<sub>10</sub> emissions from the ore unloading and ore reclaim baghouses based on hourly permitted emissions for these pollutants and the hours of operations for the processes. Propane combustion emission estimates were obtained from emission factors described in Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, EPA. The Technical Service's Engineering Memorandum for the facility's emissions is provided in Appendix A of this technical analysis. These emissions calculations provided the basis for the emissions limits that are incorporated in the operating permit and for the National Ambient Air Quality Standards (NAAQS) analyses.

Following is a summary of the permit requirements and methods used to determine compliance:

## 6.1 Facility-wide Conditions

Facility-wide conditions and methods for determining compliance are included in Section 2 of the permit. Permit Section 2 is self-explanatory and no additional detail is necessary in this technical analysis.

## 6.2 Emission Limits

The PM and PM<sub>10</sub> emission limits from the ore unloading and the ore reclaiming/expanding systems have been established based on the emission estimates submitted in the Tier II operating permit application and to ensure compliance with the ambient air quality standards. The emission limits are contained in Appendix A of the operating permit.

### Compliance Demonstration

The permittee is required to source test for PM emissions from the ore unloading baghouse stack and from the ore reclaim/expander baghouse stack in order to determine compliance with the permitted PM and PM<sub>10</sub> emission limits. The source test requirements are considered reasonable permit conditions in accordance with IDAPA 58.01.01.405.01 because the PM and PM<sub>10</sub> emissions submitted within the application were based on engineering judgment and these sources have never been tested. The source tests from these emissions points will determine the actual PM and PM<sub>10</sub> emission rates. To be conservative all of PM emissions are assumed to equal to PM<sub>10</sub>. Source test hierarchies are included in Sections 3.9 and 4.10 of the permit to determine the test frequency.

The permit establishes monitoring and recordkeeping requirements associated with source testing. These requirements are as follows:

- monitoring visible emissions during the source tests to determine compliance with IDAPA 58.01.01.625
- monitoring the pressure drop across each of the baghouses during the source tests (to determine compliance with pressure drop permit condition, which ensures that the baghouses are functioning properly)
- monitoring the throughput of ore for the processes that are source tested during the source tests to determine compliance with the throughput permit conditions, (these are directly related to the emission limits established in the permit).

When performance tests are not performed, Idaho Minerals will demonstrate compliance with PM and PM<sub>10</sub> emissions limits by monitoring, on a daily basis, the pressure drop across each of the baghouses and monitoring the daily and annual production rates of the production from the unloading, reclaim and expanding systems. Visible emissions will be monitored in accordance with the Facility-wide Condition 2.8.

## 6.3 Throughput Limits

The throughput limits apply to the ore unloading and to the ore reclaim/expanding systems which regulate the weight of ore in tons per day and tons per year (i.e., any consecutive 12-month period) processed in these sources.

### **Compliance Demonstration**

The permittee will demonstrate compliance with the daily throughput limits by monitoring the ore processed in the unloading and reclaim/expander systems on a monthly basis. The monthly throughput records are easier for the facility to track from the sold perlite and are included in the permit to give them flexibility.

#### **6.4 Hour of Operation Limits**

The hour of operation limits apply to the ore unloading system (limit 4 hours/day). The hour of operation limit is necessary because the dispersion modeling that demonstrates compliance with PM<sub>10</sub> NAAQS is based on these limitations. Refer to the modeling section in this technical analysis.

### **Compliance Demonstration**

The permittee will demonstrate compliance with this permit condition by monitoring and recording the daily hours of operations of the ore unloading system.

#### **6.5 Control Equipment**

The permit requires that PM and PM<sub>10</sub> emissions from the ore unloading and ore reclaim/expanding systems be controlled by properly functioning baghouses. The emission limitations, and subsequent compliance with all emission standards are based on the use of the baghouses. The permittee is required to prepare an O&M manual for each of the baghouses. The pressure drop across the baghouses will be maintained within manufacturer and operation and maintenance manual specifications that indicate proper baghouse operations. The permittee must install monitoring equipment in order to measure the pressure drop across the baghouses. The permittee must monitor and record the pressure drop across each of the baghouses on a daily basis. It is not expected that the pressure drop across the baghouses will change quickly, but may change over time. The daily monitoring will allow the permittee to track the changes and clean or replace the filters as necessary.

#### **6.6 Fuel Specification**

A propane gas will be used exclusively in the expanding system because the PM<sub>10</sub> emission rate calculations was based on emission factor from AP-42 for propane combustion. It is assumed that all PM emissions are equal to PM<sub>10</sub>.

#### **6.7 Emissions of Carbon Monoxide (CO), Volatile Organic Compound (VOC), Nitrogen Oxides (NO<sub>x</sub>), and fugitive PM/PM<sub>10</sub>**

Permit No. 071-0008, issued September 20, 1999, contains emission limits for CO, VOC, and NO<sub>x</sub>. These emissions were obtained from the combustion of a propane source (i.e., perlite expander) at the facility. These emission limits are deleted from this permit because the potential to emit of any of these pollutants is well below the major source threshold. Additionally, the dispersion modeling results conducted by JBR indicate that CO and NO<sub>x</sub> emissions meet all applicable NAAQS, as per IDAPA 58.01.01.403. The VOC emissions were not modeled because there is no NAAQS for the VOC and ambient ozone concentrations are not a concern in Malad City, Idaho. For more information on CO, VOC, and NO<sub>x</sub> emissions, refer to Appendix A in this memo.

The numerical values of fugitive PM and PM<sub>10</sub> emission rates are also deleted from this permit. Instead, fugitive PM and PM<sub>10</sub> emissions will be controlled in accordance with the Facility-wide Conditions 2.1-2.4.

## 6.8 NSPS Applicability to IM

A review of 40 CFR 60, 000, *Standards of Performance for Nonmetallic Mineral Processing Plants* indicates that the facility is not subject to this subpart. Perlite is considered a nonmetallic mineral as defined in 40 CFR 60.671. However, 40 CFR 60.671 further defines the nonmetallic processing plant as "any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel cement plants, or any other facility processing nonmetallic minerals except as provided in 40 CFR 60.670 (b) and (c)." There are no crushers or grinders exist at the facility.

Appendix B of this memo contains the correspondence between DEQ and IM regarding the NSPS applicability determination.

## 6.8 Performance Test Requirements

Upon further review of the  $PM_{10}$  source test requirements in the proposed Tier II permit for the ore unloading system and ore reclaim and expanding systems, DEQ has determined that conducting the PM source tests from each of the process stacks are more appropriate than conducting tests for  $PM_{10}$ . The stack diameters for each process are less than three feet which may result inaccurate source tests if Methods 201A and 202 are used. Therefore, DEQ has changed the source test requirements in the proposed Tier II OP from Methods 201A and 202 to Method 5.

To determine compliance with the  $PM_{10}$  emissions limits DEQ assumed that all PM is equal to  $PM_{10}$ , as a worst case scenario.

## Modeling

A modeling analysis using the Environmental Protection Agency ISC3P model was provided by JBR. Rick Hardy of the Division of the Technical Services reviewed the modeling analysis. The modeling determined that the facility's emissions meet ambient  $PM_{10}$  standard. However, the  $PM_{10}$  24-hour standard will likely be exceeded if operation of ore unloading system exceeds four hours per day.

Further dispersion modeling that are conducted by the permittee during the public comment period has indicated that the ore reclaim systems operations can operate for 24 hours per day without exceeding  $PM_{10}$  NAAQS. Therefore, DEQ has deleted the hours of operations restriction for this process. For more information about this issue please refer to modeling tech memo from the Department's Division of the Technical Services in Appendix C of this memorandum.

Perlite, which is a toxic air pollutant (TAP), emissions were also evaluated in the IM submittal dated March 11, 2003. In the submittal the IM assumed that all perlite emissions from the facility are equal to  $PM_{10}$  emissions. Thus, the perlite emissions are 7.8 lb/hr, which exceeds the screening emission limit (EL) of 0.667 lb/hr as listed in IDAPA 58.01.01.585. However, the  $PM_{10}$  ambient impact from the facility is  $65.56 \text{ ug/m}^3$ . The acceptable ambient concentration (AAC) for perlite is  $0.5 \text{ mg/m}^3$  (or  $500 \text{ ug/m}^3$ ), as listed in IDAPA 58.01.01.585. Therefore, the perlite AAC is less than that listed in IDAPA 58.01.01.585.

For details, refer to the Modeling Review Memorandum that is included in Appendix C of this memorandum.

## Area Classification

The IM facility is located in Oneida County, which is located in AQCR 61 and UTM Zone 12. The area is designated as an attainment or unclassifiable area for all regulated criteria air pollutants.



### **Facility Classification**

The IM is not a designated facility, as defined in IDAPA 58.01.01.006.27. The facility is not a major facility as defined in IDAPA 58.01.01.006.55 and IDAPA 58.01.01.008.10. The SIC code for this facility is 3295. The Aerometric Information Retrieval System (AIRS) facility classification for this facility is "B" because the uncontrolled potential to emit is below applicable major source thresholds (100 tons per year). The facility is not subject to NESHAP in accordance with 40 CFR 61 or 40 CFR 63 or NSPS 40 CFR 60.

### **Regulatory Review**

This operating permit is subject to the following permitting requirements:

a.	<u>IDAPA 58.01.01.123</u>	Certification of Documents
b.	<u>IDAPA 58.01.01.130</u>	Excess Emissions
c.	<u>IDAPA 58.01.01.157</u>	Test Methods and Procedures
d.	<u>IDAPA 58.01.01.401</u>	Tier II Operating Permit
e.	<u>IDAPA 58.01.01.403</u>	Permit Requirements for Tier II Sources
f.	<u>IDAPA 58.01.01.404.01(c)</u>	Opportunity for Public Comment
g.	<u>IDAPA 58.01.01.404.04</u>	Authority to Revise or Renew Operating Permits
h.	<u>IDAPA 58.01.01.405</u>	Conditions for Tier II Operating Permits
i.	<u>IDAPA 58.01.01.406</u>	Obligation to Comply
j.	<u>IDAPA 58.01.01.407</u>	Tier II Operating Permit Processing Fee
k.	<u>IDAPA 58.01.01.600</u>	Open Burning
l.	<u>IDAPA 58.01.01.625</u>	Visible Emission Limitation
m.	<u>IDAPA 58.01.01.650</u>	General Rules for the Control of Fugitive Dust
n.	<u>DAPA 58.01.01.775</u>	Odors

## 7. AIRS INFORMATION

### AIRS/AFS FACILITY-WIDE CLASSIFICATION DATA ENTRY FORM

AIR PROGRAM							AREA CLASSIFICATION
POLLUTANT	SIPS	PSD	NSPS (Part 60)	NESHAP (Part 61)	MAGT (Part 63)	TITLE V	A = Attainment U = Unclassifiable N = Nonattainment
SO <sub>2</sub>	B						U
NO <sub>x</sub>	B						U
CO	B						U
PM <sub>10</sub>	B						U
PT (Particulate)	B						U
VOC	B						U
THAP (Total HAPs)	B						NA
			APPLICABLE SUBPART				

#### AIRS/AFS Classification Codes

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant that is below the 10 T/yr threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

SM= Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND= Major source thresholds are not defined (e.g., radionuclides).

## 8. FEES

Fees apply to this facility in accordance with IDAPA 58.01.01.407. The facility is subject to permit application fees for this Tier II operating permit of \$2,500. The fee assessment spreadsheet is Appendix D of this memo.

## 9. RECOMMENDATIONS

Based on the review of the application materials, and all applicable state and federal regulations, staff recommends that DEQ issue a final Tier II operating permit to the Idaho Minerals, LLC facility in Malad City. An opportunity for public comment on the air quality aspects of the proposed Tier II operating permit was provided in accordance with IDAPA 58.01.01.404.01.c.

HE/sd

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## **APPENDIX A**

**Idaho Minerals, Malad City  
Tier II Operating Permit No. T2-020312**

**Emission Estimate Calculations  
Engineering Memorandum by the Division of Technical Services**



## **Engineering Memorandum**

March 6, 2003

**Idaho Minerals, Malad City**

**T2-020312**

*Prepared by:*

*Dan Pitman, Air Quality Engineer  
Division of Technical Services*

## Acronyms, Units, and Chemical Nomenclatures

CO	carbon monoxide
Department	Department of Environmental Quality
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	Environmental Protection Agency
gpm	gallons per minute
gr	grain (1 lb = 7,000 grains)
HAPs	Hazardous Air Pollutants
hp	horsepower
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
m	meter(s)
MACT	Maximum Achievable Control Technology
MMBtu	Million British thermal units
NESHAP	Nation Emission Standards for Hazardous Air Pollutants
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
O <sub>3</sub>	ozone
PM	Particulate Matter
PM <sub>10</sub>	Particulate Matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	Permit to Construct
PTE	Potential to Emit
<i>Rules</i>	<i>Rules for the Control of Air Pollution in Idaho</i>
scf	standard cubic feet
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
TSP	Total Suspended Particulate
T/yr	Tons per year
µg/m <sup>3</sup>	micrograms per cubic meter

## TECHNICAL ANALYSIS

### *Process Description*

The facility is a perlite expanding plant. Perlite is a natural volcanic glass similar to obsidian but having distinctive concentric cracks and a relatively high water content. In heat-expanded form perlite is used as a lightweight aggregate, in fire-resistant insulation, and in soil for potted plants. The function of this facility is to expand perlite to several times its natural state by heating it to approximately 1,500 degrees Fahrenheit.

Perlite ore is delivered to the facility by covered trucks that unload the material into a concrete hopper. The ore flows from the hopper onto the #1 unloading conveyor then to the #2 unloading conveyor which is a traveling belt that can be moved on tracks to position the discharge over the proper silo. Crude ore is stored in six steel silos. The #5 reclaim conveyor is fed by the silo discharge conveyor and delivers it to the #6 reclaim conveyor which leads to the expander surge bin. The expander vibratory feeder receives the ore from the surge bin and delivers it to the elevator which feeds distribution pipes and ultimately the expander itself. The expander is fired with propane and maintains a temperature of about 1,700 degrees Fahrenheit. The heat softens the ore and the heated internal moisture expands the ore ten to twenty times its original size. The expanded perlite is air cooled and collected in the primary product collector which is a cyclone that separates the expanded perlite from the air stream. The expanded perlite then goes to the cooler separator which separates the fines from the coarse aggregates. The coarse aggregates are collected in the coarse product packer. The fines are carried to the expander baghouse that separates the perlite fines from the air stream that is discharged to the atmosphere. Fine product passes through a 10 inch rotary valve then to the fine product packer. Expander baghouse fines are collected in the baghouse fines packer via an 8 inch rotary airlock. Emissions from unloading product are controlled by the unloading baghouse.

Point source emissions are discharged to the air through two stacks. Each stack's emissions are controlled by one of the two baghouses. Fugitive emissions are reasonably controlled by an enclosure or by work practices.

### *Equipment Listing*

The following equipment was listed in the application.

- Unloading hopper – input to the process
- #1 unloading conveyor belt – 180 ton per hour capacity
- #2 unloading conveyor belt - 180 ton per hour capacity, portable feature allows discharge to various silos
- 6 storage silos –130 tons capacity each
- #1 reclaim belt – 180 ton per hour capacity, transfers ore from silo to #2 reclaim belt,
- #2 reclaim belt – 180 ton per hour capacity, receives ore from #1 conveyor and delivers to surge bin
- Surge bin – 3 ton capacity (approximated)
- Vibratory feeder – feeds ore to elevator
- Elevator – 5 ton per hour capacity (approximated), discharges to pipes which feed the expander
- Expander – Model VS 225, gas fired, manufactured by Perlite Corporation
- Product cyclone – 72-inch diameter
- Rotary air lock – 12-inch, on product cyclone
- Separator – cools expanded perlite prior to bagging
- Cyclone – 24-inch, separates fine product from cooler
- Rotary air lock – on 24-inch cyclone
- Baghouse – ore unloading dust collector
- Baghouse – expander dust collector

## Emission Estimates

Emission estimates provided by the applicant are based on engineering judgment for the perlite processing plant emissions and AP-42 for a small (2,000 cubic feet per hour) propane combustion source. These emission estimates are accepted as representative of emissions from the facility. Performance testing (source testing) of the ore unloading baghouse and the ore reclaim/expander baghouse would be one method of determining the actual emission rates of PM<sub>10</sub>.

Table 1 lists estimated emissions in pounds per hour and tons per year, which match the emission rates listed on the permit application forms. It should be noted that the applicant provided several calculations and has clarified that the emission rate listed on the application forms and included in Table 1 are the emission rates that they wish to be permitted at. For the pollutants listed in Table 1, the ton per year value is equal to the potential to emit of the facility assuming that the two baghouses are operated in a manner that effectively controls particulate emissions and that the facility operates 8,760 hours per year.

**Table 1. Estimated Emissions**

Source	PM		PM <sub>10</sub>		NO <sub>x</sub>		SO <sub>2</sub>	CO		VOC	Perlite <sup>1</sup>	
	Lb/hr <sup>2</sup>	T/yr <sup>3</sup>	Lb/hr	T/yr	Lb/hr	T/yr	Neg. <sup>4</sup>	Lb/hr	T/yr	Neg.	Lb/hr	T/yr
Ore Unloading Baghouse	1.65	7.23	1.65	7.23	--	--	Neg.	Neg.	Neg.	Neg.	1.65	7.23
Ore Reclaim & Expander Baghouse	1.15	5.04	1.15	5.04	0.84	3.68	Neg.	0.11	0.48	Neg.	1.15	5.04

- 1 Assumes all PM is perlite.
- 2 pounds per hour
- 3 tons per year
- 4 negligible

Perlite expanding and processing emission estimates for PM, PM<sub>10</sub> and Perlite were provided by the applicant. Emission estimates for these pollutants are based on engineering estimates that the applicant presented in the application. These emission estimates are included as an attachment to this memorandum. No published emission factors are available for estimating emissions to compare to the engineering estimates provided by the applicant. Final emission rates provided by the applicant from the two point sources of emissions that are controlled by baghouses appear reasonable. However, since the emission estimates are based solely on engineering judgment performance testing (source testing) of these emissions points could be conducted to determine actual emissions.

Application materials regarding the Ore Reclaim/Expander stack indicated a stack temperature of 1,500 degrees Fahrenheit. The application materials were reviewed and it is apparent that the 1,500-degree temperature is the approximate temperature of the gases within the expander not the temperature of the gases at the exit of the stack. Expander gases at the stack exit are actually cooled to approximately 325 degrees Fahrenheit. Estimated stack gas velocity and stack temperature is given in Table 2.

**Table 2. Stack Temperature and Gas Velocity**

Stack	Gas Velocity (fps <sup>1</sup> )	Stack Temp. (°F <sup>2</sup> )
Ore Unloading	78.2	70
Ore Reclaim & Expander	18.7	325

1 feet per second  
2 degrees Fahrenheit

### **Source Testing**

No source test information was provided in the application for review nor was source test information found in the source file for Idaho Minerals.

### **Operating Parameters**

The following parameters have potential impacts on emission rates of PM and PM-10 from Idaho Minerals' perlite manufacturing process:

- Perlite expansion processing rate
- Pressure drop across the baghouse(s)
- Improperly operated baghouse(s)
- Visible emissions from stacks
- Visible emissions from fugitive sources.



**Expanding System (Non-Combustion)**

**Baghouse**

72" cyclone

Tons per hour capacity 1.00 tph

Tons per year capacity 4,000.00 tpy

Cyclone efficiency 90.00%

Baghouse efficiency 99.90%

Baghouse emissions 0.20 lb/hr

Cooler Separator

Separator efficiency 83.00%

Baghouse efficiency NA

Baghouse emissions 0.00

lb/hr

Fines cyclone

Cyclone efficiency 93.00%

Baghouse efficiency 99.9%

Baghouse emissions 0.02

lb/hr

Total 0.22

**From:** "Daniel Heiser" <dheiser@jbr-env.com>  
**To:** <helshafe@deq.state.id.us>  
**Date:** 12/12/02 3:18PM  
**Subject:** Fw: Emission Inventory and Production Limits for Idaho Minerals -- Please Review

Harbi,

Attached is the emission inventory with production limits. The production limits are also summarized below. As you can see, Marvin Hess finds them acceptable. Don't hesitate to call me if you have questions.

Daniel P. Heiser, P.E.  
Project Manager/Senior Environmental Scientist  
JBR Environmental Consultants, Inc.  
6443 North Hillsboro Place  
Boise, ID 83703  
208.853.0883 (phone)  
208.853.0884 (fax)  
208.841.4684 (cell)

----- Original Message -----

**From:** J. Marvin Hess  
**To:** 'Daniel Heiser'; 'Mike Hess'; bradh@hesspumice.com; marvinh@hesspumice.com  
**Sent:** Thursday, December 12, 2002 2:01 PM  
**Subject:** RE: Emission Inventory and Production Limits for Idaho Minerals -- Please Review

I have reviewed the production limits. They are adequate for our current operation.  
Marvin

-----Original Message-----

**From:** Daniel Heiser [mailto:dheiser@jbr-env.com]  
**Sent:** Wednesday, December 11, 2002 5:42 PM  
**To:** Mike Hess; bradh@hesspumice.com; marvinh@hesspumice.com  
**Subject:** Emission Inventory and Production Limits for Idaho Minerals -- Please Review

Marvin, Michael, Brad,

Please review one more time the production limits for each source. The limits are at the top of each process tab and are summarized below. Harbi Elshafei required that I compose this emission inventory and that I check with you one more time on production limits, which will be written into the permit. Please comment.

Ore Unloading System      Limits      4 hrs/day

60 tph  
4,000 tpy

Ore Reclaim      11 hrs/day

30 tph  
4,000 tpy

Expanding System      11 hrs/day

e exhausted  
into one block

### Emissions Inventory

Source Description	Hourly Emissions					Annual Emissions				
	PM/PM-10, lb/hr	NOx, lb/hr	CO, lb/hr	VOCs, lb/hr	SO <sub>2</sub> , lb/hr	PM/PM-10, tpy	NOx, tpy	CO, tpy	VOCs, tpy	SO <sub>2</sub> , tpy
Ore Unloading Baghouse, SRC 20	1.65					0.06				
Reclaim System and Unloading Baghouse, SRC 18	0.90					0.06				
Expander	0.25	0.84	0.11	0.03	0.00	0.49	1.68	0.23	0.06	0.00
Ore Unloading (Process Fugitives)	3.17					0.11				
Ore Reclaim (Process Fugitives)	1.83					0.12				

See worksheets for calculations.

Annual emissions based on annual throughput in following worksheets.

**Ore Unloading System****Baghouse**

Unloading hopper:

Tons per hour capacity 60.00 tph

Tons per year capacity 4,000.00 tpy

PM/PM-10 to exhaust

(based on engineering estimate)

5.00%

PM/PM-10 in ore

3.00%

Hood efficiency

99.00%

Baghouse efficiency

99.90%

Baghouse emissions

0.18 lb/hr

**Process Fugitive**

Building efficiency

90%

0.18 lb/hr

Unloading belt #1:

PM/PM-10 to hood

25.00%

PM/PM-10 in ore

3.00%

Hood efficiency

98.00%

Baghouse efficiency

99.9%

Baghouse emissions

0.84 lb/hr

Building efficiency

90%

1.71 lb/hr

Unloading belt #2:

of belt #1

PM/PM-10 to hood

25.00% throughput

PM/PM-10 in ore

3.00%

Hood efficiency

98.00%

Baghouse efficiency

99.9%

Baghouse emissions

0.63 lb/hr

Building efficiency

90% lb/hr

1.28 lb/hr

Total baghouse:

1.64

Total fugitive

3.17 lb/hr

**Ore Reclaim****Baghouse**

Silo Discharge

Tons per hour capacity

30.00 tph

Tons per year capacity

4,000.00 tpy

PM/PM-10 to exhaust

(based on engineering estimate)

25.00%

PM/PM-10 in ore

2.00%

Hood efficiency

98.00%

Baghouse efficiency

99.90%

Baghouse emissions

0.29 lb/hr

**Process Fugitive**

Building efficiency

90%

0.60 lb/hr

No. 5 reclaim belt:

PM/PM-10 to hood

25.00%

PM/PM-10 in ore

2.00%

Hood efficiency

98.00%

Baghouse efficiency

99.9%

Baghouse emissions

0.22 lb/hr

Building efficiency

90%

0.45 lb/hr

No. 6 reclaim belt:

of belt #5

PM/PM-10 to hood

25.00% throughput

PM/PM-10 in ore

2.00%

Hood efficiency

98.00%

Baghouse efficiency

99.9%

Baghouse emissions

0.17 lb/hr

Building efficiency

90% lb/hr

0.34 lb/hr

Surge bin:

PM/PM-10 to hood

25.00%

PM/PM-10 in ore

2.00%

Hood efficiency

98.00%

Baghouse efficiency

99.9%

Baghouse emissions

0.12 lb/hr

Building efficiency

90% lb/hr

0.25 lb/hr

Elevator

PM/PM-10 to hood

25.00%

PM/PM-10 in ore

2.00%

Hood efficiency

98.00%

Baghouse efficiency

99.9%

Baghouse emissions

0.09 lb/hr

Building efficiency

90% lb/hr

0.19 lb/hr

Total baghouse:

0.90 lb/hr

Total fugitive

1.83 lb/hr

**Expanding System (Non-Combustion)**

**Baghouse**

72" cyclone

Tons per hour capacity	1.00 tph
Tons per year capacity	4,000.00 tpy
Cyclone efficiency	90.00%
Baghouse efficiency	99.90%
Baghouse emissions	0.20 lb/hr

**Cooler Separator**

Separator efficiency	83.00%
Baghouse efficiency	NA
Baghouse emissions	0.00

lb/hr

**Fines cyclone**

Cyclone efficiency	93.00%
Baghouse efficiency	99.9%
Baghouse emissions	0.02

lb/hr

Total	0.22
-------	------

# Propane Emissions

	Pollutant					
	SO <sub>2</sub>	SO <sub>3</sub>	NO <sub>x</sub>	CO	PM	VOC
Emission Factor, lb/1,000 gal	0.1 S		14	1.9	0.4	0.5
S = 0.006468						
Maximum gal/hr 60.00						
Maximum hrs/yr 4,000						
Emissions, lb/hr No control	3.88E-05		0.84	0.11	0.02	0.03
Emissions, ton/yr No control	7.76E-05		1.68	0.23	0.05	0.06

S = sulfur fuel content in grains/100 ft<sup>3</sup>. At approximately 15 ppm or  $1.1 \times 10^{-5}$  weight fraction, S =

$$(1.1 \times 10^{-5})(4.2 \text{ lb/gal})(60 \text{ gal/hr})(7,000 \text{ grain/lb})(100)/(60 \text{ min/hr})(5,000 \text{ ft}^3/\text{min})$$

$$0.006468 \text{ grains} / 100 \text{ ft}^3$$

Note that the density is 4.2 lb/gal, and the exhaust flow rate is 5,000 ft<sup>3</sup>/min.

Fuel consumption, maximum = 60 gal/hr

## **APPENDIX B**

**Idaho Minerals, Malad City  
Tier II Operating Permit No. T2-020312**

**NSPS Correspondence**



**IDAHO MINERALS, LLC**

P.O. Box 162  
100 Hess Drive  
Malad Industrial Park  
Malad City, Idaho 83252  
Phone (208) 766-4054  
Fax (208) 766-4776

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MAR 11 2003

Department of Environmental Quality  
State Air Program

Copy: PRO-Air  
Harbi E.  
Mike S.  
orig → Src File

March 3, 2003

Harbi Elshafei  
Idaho Department of Environmental Quality  
1410 North Hilton  
Boise, Idaho 83706-1255

RE: Response to IDEQ Letter Dated 1-28-03 for AIRS Facility No. 071-00008, Idaho Minerals,  
Malad City, New Source Performance Standards Applicability *T2 - 020712*

Dear Mr. Elshafei:

Idaho Minerals is providing the information requested in your letter dated January 28, 2003. The information provided below should address the New Source Performance Standards (NSPS) applicability of 40 CFR Subpart OOO for this perlite expanding plant. Below are responses to Idaho Department of Environmental Quality (IDEQ) requests in the 1/28/03 letter:

**1. Specify the exact date the dust collection system was installed.**

The installation date of the dust collection system was 1989.

**2. Describe the dust collection system that was added to the ore unloading system. When defining the dust collection system, refer to definitions in 40 CFR 60.671, which further identify air conveying systems and air separators or air classifiers where such systems are used as part of affected facilities. Indicate which emission sources are connected to the dust collection system.**

The dust collection system installed in 1989 is shown in the top dashed line in the enclosed revise expander plant flow sheet. The collection system consists of enclosed piping. The equipment and emission points connected to the dust collector system are: (with equipment identification numbers):

- Ore unloading baghouse (20)
- Unloading hopper (1)
- No. 1 and no. 2 unloading conveyors (2), (3)
- No. 5 reclaim conveyor (5)
- Silo discharge conveyors (25)

In 40 CFR 60.671, grinding mills are defined as follows:

Grinding mills include, but are not limited to, the following types: hammer, roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator, or air classifier, where such systems are used.

There are no air separators included as part of the dust collection system installed in 1989. Air conveying systems exist as follows:

- No. 1 unloading conveyor (2)
- No. 2 unloading conveyor (3)
- Reclaim conveyor (5)
- Reclaim conveyor (6)

3. In accordance with 40 CFR 60.14, express any claimed decrease in emission rate that resulted from the installation of the dust collection system in kilograms per hour (kg/hr) or pounds per hours (lb/hr).

In 40 CFR 60.14, modification is defined as any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere. Emission rate shall be expressed as kg/hr of any pollutant discharged into the atmosphere for which a standard is applicable.

The dust collection system caused a decrease in the emission rate expressed as kg/hr or lb/hr. Prior to the dust collection system, there was no baghouse installed. Without the 99.9% efficiency of the baghouse, the emissions of the ore unloading system is approximately 1,640 lb/hr (745 kg/hr) of PM/PM-10. With the baghouse, the emissions are 1.64 lb/hr (0.75 kg/hr) of PM/PM-10. This represents a reduction of 1,638 lb/hr (744 kg/hr) of PM/PM-10. Please refer to the emissions inventory spreadsheet submitted previously for the emission calculations.

Similarly, the reclaim system, without the 99.9% efficiency of the baghouse, shows emissions of 900 lb/hr (409 kg/hr). With the baghouse the PM-10 emissions are 0.9 lb/hr (0.4 kg/hr). The reduction of PM/PM-10 emissions are 899 lb/hr (408.6 kg/hr). Again, this shows the dust collection system is not defined as a modification.

Process fugitive emissions are unaffected by the dust collection system. Because this is a reduction in emissions, the dust collection system is not considered a modification as defined in 40 CFR 60.14, and NSPS is not triggered.

4. Explain any increase in PM emissions associated with the increased production of perlite ore found on page 37 of the application.

There is no increase in production. Page 37 is correct. However, the application form for the ore unloading system SRC20 inadvertently shows the production to be double of the correct maximum and actual hourly rate. The maximum hourly rate should be 100 tons per hour (tph), and the actual should be 60 tph. The corrected application page is enclosed with this letter.

5. In addition, IDAPA 58.01.01.585 identifies perlite as a toxic air pollutant, submit the actual emission rate (lb/hr) for the pollutant.


It is estimated that the perlite is 100% of the PM. The total facility-wide controlled perlite emissions would then be 7.8 lb/hr, including process fugitives. This exceeds the emission limit (EL) of 0.667 lb/hr for perlite. However, the 24-hour ambient impact for PM/PM-10 from the whole facility is 65.56 ug/m<sup>3</sup>; the perlite ambient impact is estimated to be the same. This is far

less than the acceptable ambient concentration (AAC) of 500 ug/m<sup>3</sup> (or 0.500 mg/m<sup>3</sup> as listed in IDAPA 58.01.01.585). Therefore, perlite emissions are acceptable based on the screening criteria for toxic air pollutants.

Idaho Minerals believes that NSPS Subpart OOO is not applicable for the reasons discussed in the January 8, 2003 letter and based on the responses above. Please feel free to contact me 208.766.4054 if you have further questions, or contact Daniel Heiser of JBR at 853.0883.

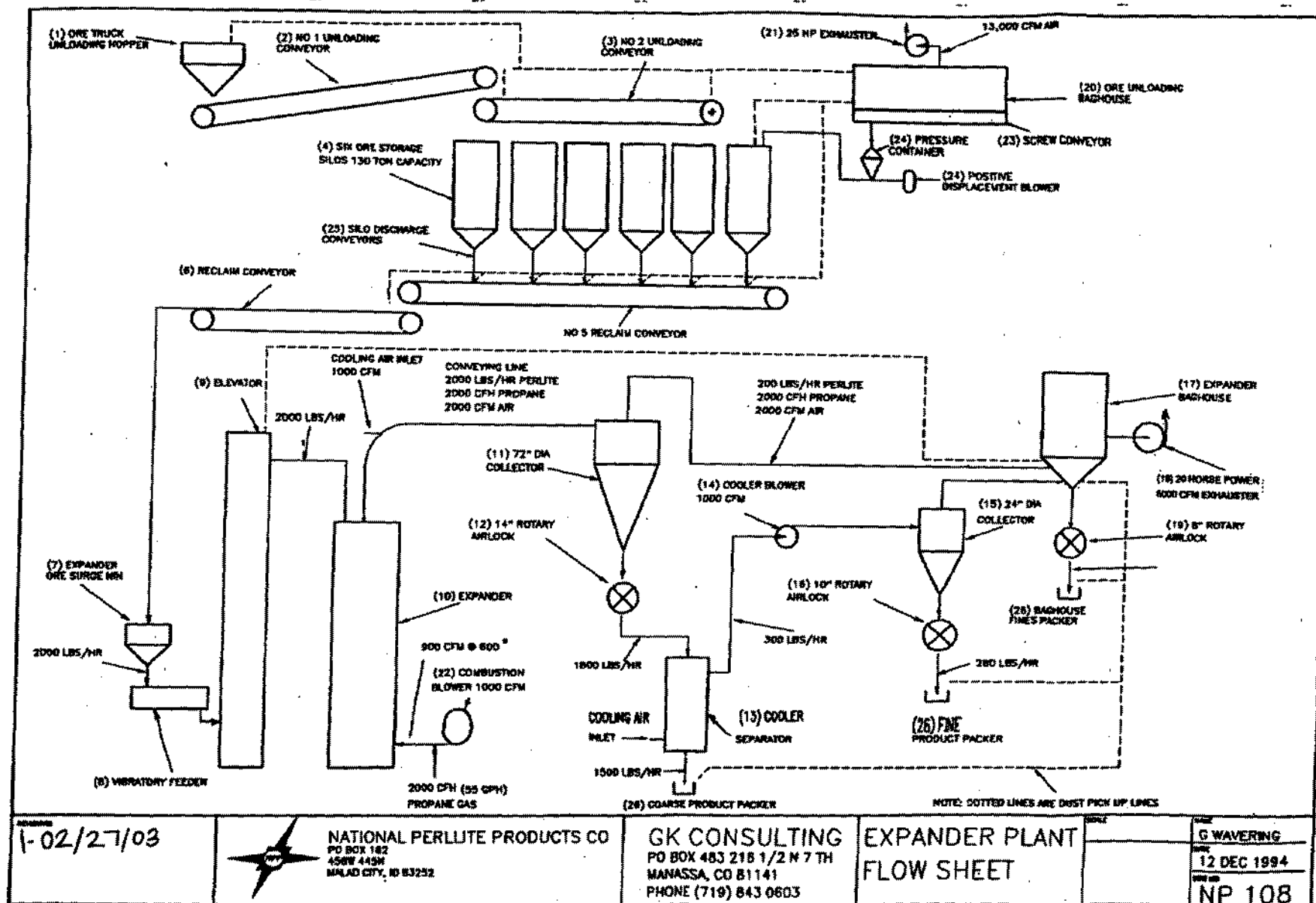
I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Sincerely,  
Idaho Minerals, LLC

A handwritten signature in cursive script, reading "J. Marvin Hess".

J. Marvin Hess  
Manager

cc: Daniel P. Heiser, JBR Environmental



# SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

## DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

## PART A GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	Pre Unloading SRL20		
STACK DESCRIPTION	SRL20		
BUILDING DESCRIPTION	BLD 10		
MANUFACTURER	Chicago Blower, unloading exhausters North American, combustion blower	MODEL	N/A
		DATE INSTALLED	Prior to 1995
		DATE LAST MODIFIED	Not applicable

## PROCESSING DATA

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	UNITS
INPUT	Perlite ore	120 tph	60 tph	ton/hr
PRODUCT OUTPUT	Perlite	120 tph	120 tph	ton/hr
WASTE OUTPUT				
RECYCLE				

## POTENTIAL HAPS IN PROCESS STREAM(S) N/A

HAP DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT



STATE OF IDAHO  
DEPARTMENT OF  
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706-1255 • (208) 373-0502

Dirk Kempthorne, Governor  
C. Stephen Allred, Director

January 28, 2003

Certified Mail No. 7 099 3220 0009 1976 0541

Michael J. Hess  
Idaho Minerals LLC  
P.O. Box 162  
Malad City, ID 83252

RE: AIRS Facility No. 071-00008, Idaho Minerals LLC, Malad City  
Tier II Operating Permit, New Source Performance Standards Applicability Determination

Dear Mr. Hess:

On December 13, 2002, the Department of Environmental Quality (Department) determined your Tier II operating permit application complete. Upon further analysis, the Department has found that your facility is subject to 40 CFR 60.670, Subpart OOO, Standards of Performance for Nonmetallic Processing Plants.

My telephone conversation with your consultant, Dan Heiser of JBR, resulted in the submittal of an addendum to your Tier II permit application on January 8, 2003. In the addendum, Idaho Minerals stated, "A dust collection system with a baghouse was added to the unloading system in the 1980s, causing emissions to decrease. All other equipment at the site is the original equipment since the site began operations in 1963." Furthermore, the permit application addendum concluded that Subpart OOO is not applicable to the facility.

In order for the Department to better assess the applicability of Subpart OOO and that modification occurred at your facility, please submit the following information:

- Specify the exact date the dust collection system was installed.
- Describe and define the dust collection system that was added to the ore unloading system. When defining the dust collection system, refer to the definitions in 40 CFR 60.671, which further identify air conveying systems and air separators or air classifiers where such systems are used as part of affected facilities. Indicate which emission sources connected to the dust collection system.
- In accordance with 40 CFR 60.14, express any claimed decrease in emission rate that resulted from the installation of the dust collection system in kilograms per hour (kg/hr) or pounds per hour (lb/hr).
- Explain any increase in PM emissions associated with the increased production rate of perlite ore found on page 37 of the application.
- In addition, IDAPA.01.01.58.585 identifies perlite as a toxic air pollutant, submit the actual emission rate (lb/hr) for that pollutant.

Mr. Michael J. Hess, Idaho Minerals Inc.  
January 28, 2003  
Page 2

Please submit this information to the Department within 30 days of receiving this letter so that a Tier II operating permit may be granted.

If you have any questions about this project, please contact me at [helshafe@deq.state.id.us](mailto:helshafe@deq.state.id.us) or (208) 373-0502. For questions regarding the Tier II operating permit process, please call Mike Simon at (208) 373-0201.

Sincerely,

*Harbi A. Elshafei*

Harbi A. Elshafei  
Analyst III  
Air Quality Division

HE:sd Project No. T2-020312  
G:\AQ\STA SRCEISS LTD\T2\IDAHO MINERALS\T2-020312 NSPS APPLICABILITY DETERMINATION

cc: Tiffany Floyd, Pocatello Regional Office  
Sherry Davis, Air Quality Division  
Dan Heiser, JBR, Boise

(SF)

IDAHO MINERALS, LLC

P.O. Box 162  
100 Hess Drive  
Malad Industrial Park  
Malad City, Idaho 83252  
Phone (208) 766-4054  
Fax (208) 766-4776

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JAN 08 2003

DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE A Q PROGRAM

Copy: - Harbi E.  
- Mike S.  
- PRO-Air

January 3, 2003

Mike Simon  
Idaho Department of Environmental Quality  
1410 North Hilton  
Boise, Idaho 83706-1255

RE: ~~Addendum to Tier II Operating Permit Application~~ for AIRS Facility No. 071-00008, Idaho Minerals, Malad City, New Source Performance Standards Applicability

~~IR-020312~~

Dear Mr. Simon:

Due to conversations with JBR Environmental and Harbi Elshafei, I am providing additional information to the Tier II permit application for New Source Performance Standards (NSPS) applicability. This letter addresses applicability requirements for 40 CFR 60.670, Standards of Performance for Nonmetallic Processing Plants, 40 Code of Federal regulations Part 60, Subpart 670 (Subpart OOO).

Idaho Minerals began operation in ~~before~~ the NSPS Subpart effective date of ~~August 31, 1983~~ (see §60.670(e)). Since the beginning of the operation, ~~production and emissions have not increased~~. A horizontal furnace was changed to a vertical furnace prior to 1975. A ~~dust collection system with a baghouse installed in the unloading system in the 1980s~~, causing emissions to decrease. All other equipment at the site is the original equipment since the site began operations.

According to §60.2 of the Code of Federal Regulations, modification means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted. In §60.14, modification is further defined as any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies. According to §60.14(b), emission rate shall be expressed as kg/hr of any pollutant discharged into the atmosphere for which a standard is applicable. According to §60.14(e)(6), the relocation or change in ownership of an existing facility is not considered a modification.

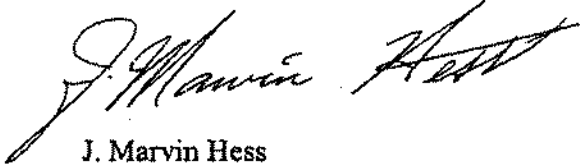
Idaho Minerals has determined that a modification, as define above, never occurred. Emission rate increases in terms of kg/hr, as defined in §60.14(b) have not occurred at the site since the beginning of ~~operation in 1969~~. Because no modification has occurred, Idaho Minerals concludes that NSPS Subpart OOO is not applicable.

We regret omitting this applicability determination in the original application. Please feel free to contact me 208.766.4054 if you have questions, or contact Daniel Heiser of JBR at 853.0883.

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.



Sincerely,  
Idaho Minerals, LLC

A handwritten signature in cursive script, reading "J. Marvin Hess". The signature is written in dark ink and is positioned above the printed name and title.

J. Marvin Hess  
Manager

cc: Daniel P. Heiser, JBR Environmental

## **APPENDIX C**

**Idaho Minerals, Malad City  
Tier II Operating Permit No. T2-020312**

**Modeling Technical Memorandum**

## **MEMORANDUM**

**TO:** Harbi Elshafei, Air Permit Analyst, Air Program Division  
Mary Anderson, Air Modeling Coordinator, Air Program Division

**FROM:** Rick Hardy, Air Quality Engineer, State Office of Technical Services *RH*

**SUBJECT:** Atmospheric Dispersion Modeling Review for the Idaho Minerals Tier II Air Permit Application

**DATE:** July 8, 2003

---

### **1.0 SUMMARY:**

Idaho Minerals, LLC of Malad City, Idaho (IM) submitted a request on July 10, 2002 to renew its operating permit (# 071-00008), which expired on February 28, 2001. IM requested The Department of Environmental Quality (the Department) to modify the current Permit Conditions 1.1, 1.3 3.3, and 3.4 regarding replacing the facility's perlite expander baghouse. On December 12, 2002 the Department received a Tier II operating permit application including an air dispersion modeling analysis dated November 14, 2000, prepared by IM's consultant, JBR Environmental Consultants, Inc. (JBR). The modeling analysis included atmospheric dispersion modeling of facility-wide emissions in support of the Tier II application to demonstrate that the stationary source would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02).

The application was declared complete by the Department on December 13, 2002.

A technical review of the submitted air quality analyses was conducted by the Department's Technical Services Division. The modeling analyses, with a minor correction, 1) utilized appropriate methods and models; 2) was conducted using proper model parameters and accurate input data; 3) adhered to established Departmental guidelines for new source review dispersion modeling; 4) demonstrated that predicted pollutant concentrations from facility-wide emissions, when appropriately combined with background concentrations, were below applicable air quality standards. The correction involved using an expander stack temperature shown in the appendix of the application (329° F) rather than a physically unrealistic temperature (1500° F) used in the submitted modeling report and listed in the application forms. (The higher value does not account for cool air streams mixed into the expander exhaust air stream).

During the public comment period, IM requested that the hours of operation of the ore reclaim and expanding unit be changed to 24 hours per day. The facility submitted a revised modeling analysis which demonstrated compliance with the NAAQS. A second modeling review was completed to verify the revised analysis and the tables and text of this memo were updated on July 3, 2003 to reflect the revised hours and subsequent modeling results.

### **2.0 DISCUSSION:**

#### **2.1 Applicable Air Quality Impact Limits**

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

##### **2.1.1 Area Classification**

IM is located in Oneida County, designated as an attainment or unclassifiable area for sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), lead (Pb), ozone (O<sub>3</sub>), and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM<sub>10</sub>). There is no Class I area within 100 kilometers of the facility.

### 2.2.2 Significant Impact and Full Impact Analyses

If estimated maximum impacts to ambient air from the emissions sources associated with the proposed modification exceed the "significant contribution" levels of IDAPA 58.01.01.006.93, then a full impact analysis is necessary to demonstrate compliance with IDAPA 58.01.01.203.02. A full impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions to Department-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location. The resulting maximum pollutant concentrations in ambient air are then compared to the National Ambient Air Quality Standards (NAAQS) listed in Table 1. Table 1 also lists significant contribution levels, provides ambient standards for Toxic Air Pollutants (TAPs), and specifies the modeled value that must be used for comparison to the standards.

**Table 1. Applicable regulatory limits**

Pollutant	Averaging Period	Significant Contribution Levels <sup>a</sup> (µg/m <sup>3</sup> ) <sup>b</sup>	Regulatory Limit <sup>c</sup> (µg/m <sup>3</sup> )	Modeled Value Used <sup>d</sup>
PM <sub>10</sub> <sup>e</sup>	Annual	1.0	50 <sup>f</sup>	Maximum 1 <sup>st</sup> highest <sup>g</sup>
	24-hour	5.0	150 <sup>h</sup>	Maximum 6 <sup>th</sup> highest <sup>i</sup>
Carbon monoxide (CO)	8-hour	500	10,000 <sup>j</sup>	Maximum 2 <sup>nd</sup> highest <sup>g</sup>
	1-hour	2,000	40,000 <sup>j</sup>	Maximum 2 <sup>nd</sup> highest <sup>g</sup>
Sulfur Dioxide (SO <sub>2</sub> )	Annual	1.0	80 <sup>f</sup>	Maximum 1 <sup>st</sup> highest <sup>g</sup>
	24-hour	5	365 <sup>j</sup>	Maximum 2 <sup>nd</sup> highest <sup>g</sup>
	3-hour	25	1,300 <sup>j</sup>	Maximum 2 <sup>nd</sup> highest <sup>g</sup>
Nitrogen Dioxide (NO <sub>2</sub> )	Annual	1.0	100 <sup>f</sup>	Maximum 1 <sup>st</sup> highest <sup>g</sup>
Lead (Pb)	Quarterly	NA	1.5 <sup>j</sup>	Maximum 1 <sup>st</sup> highest <sup>g</sup>
Perlite (a non-carcinogenic TAP)	24-hour	NA	500	Maximum 1 <sup>st</sup> highest <sup>g</sup>

a. IDAPA 58.01.01.006.93

b. Micrograms per cubic meter

c. IDAPA 58.01.01.577 for criteria pollutants, IDAPA 58.01.01.585 for non-carcinogenic toxic air pollutants IDAPA 58.01.01.586 for carcinogenic toxic air pollutants.

d. The maximum 1<sup>st</sup> highest modeled value is always used for significant impact analysis and for all toxic air pollutants

e. Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

f. Never expected to be exceeded in any calendar year

g. Concentration at any modeled receptor

h. Never expected to be exceeded more than once in any calendar year

i. Concentration at any modeled receptor when using five years of meteorological data

j. Not to be exceeded more than once per year

### 2.2.3 Toxic Air Pollutant Impact Analysis

Toxic Air Pollutant (TAP) requirements for PTCs are specified in IDAPA 58.01.01.210. If the net emissions increase associated with a new source or modification exceeds screening emission levels (ELs) of IDAPA 58.01.01.585 and IDAPA 58.01.01.586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of IDAPA 58.01.01.585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of IDAPA 58.01.01.586, then compliance with TAP requirements has been demonstrated. Table 1 lists ACCs for all TAPs having emissions rates exceeding ELs. Only the mineral perlite was evaluated as a TAP in this analysis.

## 2.2 Background Concentrations

The Department originally provided JBR with background concentration values in 2002. Background

concentrations were revised for all of Idaho by the Department in March 2003<sup>1</sup>. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources. The area surrounding the facility was determined to be "small town/suburban", and Table 2 lists the revised default background concentrations for such areas.

**Table 2. Background Concentrations**

Pollutant	Averaging Period	Background Concentration ( $\mu\text{g}/\text{m}^3$ ) <sup>a</sup>
PM <sub>10</sub> <sup>b</sup>	24-hour	81
	Annual	27
Carbon monoxide (CO)	1-hour	10,200
	8-hour	3,400
Sulfur dioxide (SO <sub>2</sub> )	3-hour	42
	24-hour	26
	Annual	8
Nitrogen dioxide (NO <sub>2</sub> )	Annual	32
Lead (Pb)	Quarterly	0.03

<sup>a</sup>. Micrograms per cubic meter

<sup>b</sup>. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

### 2.3 Modeling Impact Assessment

Table 3 provides a summary of the modeling parameters used in the submitted modeling and for the Department's analyses.

**Table 3. Modeling Parameters**

Parameter	Description/Values	Documentation/Additional Description
Model	ISC3-Prime	Version 99020
Meteorological data	Pocatello Surface Data Salt Lake City Upper Air Data	1987-1991
Model options	Regulatory Default	
Land use	Urban	
Terrain	None	Area is effectively flat. 7.5 min DEM from Webmet was used.
Building downwash	Used building profile input program for ISC3 (BPIP)	Building dimensions obtained from modeling files submitted
Receptor grid	Grid 1	15 meter spacing at hot spots as submitted
	Grid 3	25 meter spacing out to 50 meters
	Grid 4	100 meter spacing out to about 350 meters
	Grid 5	200 meter spacing out to about 1000 meters (as submitted-DEQ analysis omitted this grid to reduce run times-max is at fence)
Facility location (UTM) <sup>a</sup>	Easting	396 kilometers
	Northing	4,672 kilometers

<sup>a</sup>. Universal Transverse Mercator

1 Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

### **2.3.1 Modeling protocol**

A modeling protocol was not submitted to the Department, however, modeling for this Tier II was conducted according discussions with Department modeling staff regarding key issues.

### **2.3.2 Model Selection**

Ambient air impact analyses were performed by JBR, IM's consultant, using the model ISC3P. The Department concurs with JBR's selection of ISC3P for these dispersion modeling analyses. The Department conducted verification runs using ISC3P v99020.

### **2.3.3 Land Use Classification**

Well over 50 percent of the land use of the surrounding area is urban. Therefore, urban dispersion coefficients were used in the modeling analyses.

### **2.3.4 Meteorological Data**

Surface meteorological data from Pocatello, Idaho, and upper air meteorological data from Salt Lake City, Utah, for 1987 through 1991, were used in the modeling analyses. The Department determined these data are the most representative data currently available for the area.

### **2.3.5 Complex Terrain**

The modeling analyses submitted by the consultant utilized USGS terrain Data, although significant terrain features are not present and terrain should have minimal effect on results for this facility. The Department imported new 7.5 min terrain data from [www.webmet.com](http://www.webmet.com) for use in the verification modeling.

### **2.3.6 Facility Layout**

The Department verified proper identification of the facility boundary and buildings on the site by comparing the modeling input to a facility plot plan submitted with the application and aerial photographs of the area.

### **2.3.7 Building Downwash**

Plume downwash effects caused by structures present at the facility were accounted for in the modeling analyses. The Building Profile Input Program for ISC3P (BPIP-Prime) was used by JBR to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emissions release parameters. ISC3-Prime was used to rerun the two years with the highest annual concentrations. The Department's verification modeling was conducted using regenerated parameters from BPIP-Prime and ISC3-Prime for all 5 years of meteorological data.

### **2.3.8 Ambient Air Boundary**

The applicant indicated ambient air is that area external to a fence line along the plant property boundary.

### **2.3.9 Receptor Network**

Minor alterations were made to the originally submitted receptor grids to reduce the run times for verification modeling, although JBR's original fine receptor grid was retained along the southern perimeter where maximum concentrations occur. The Department determined the grids were adequate to reasonably resolve maximum modeled concentrations.

### 2.3.10 Emission Rates

Emissions rates used in the dispersion modeling analyses submitted by the applicant were reviewed against those in the permit application and the proposed permit. The following approach was used for the Department's verification modeling:

- All modeled emissions rates were equal to the facility's emissions calculated in the Tier II operating permit application or the permitted allowable rate.
- Modeling results were compared to *significant contribution* thresholds. More extensive review of modeling parameters selected was conducted when model results approached applicable thresholds.

Table 4 provides criteria pollutant emissions quantities for short-term averaging periods (1 hour through 24 hour), and Table 5 provides emissions rates for TAPs.

**Table 4. Criteria Pollutant Emissions Rates Used for Modeling (24-Hour and Less)**

Source (Id Code)	Location (UTM) <sup>a</sup>	Hourly Rate Used for Modeling (lb/hr) <sup>b</sup>		
		PM <sub>10</sub> <sup>c</sup>	CO <sup>d</sup>	NOx <sup>e</sup>
Reclaim System and Expander Baghouse	396232.8 4672337.5	1.15	0.11	N/A
Ore Unloading baghouse (SRC18)	396193.6 4672302.0	1.65	N/A	N/A
Ore Unloading – bottom (process fugitives)	396174.8 4672309.5	1.6	N/A	N/A
Ore Unloading –top (process fugitives)	396174.8 4672309.5	1.6	N/A	N/A
Ore Reclaim (process fugitives)	396222.4 4672352.0	1.8	N/A	N/A

<sup>a</sup>. Universal Transverse Mercator

<sup>b</sup>. Pounds per hour

<sup>c</sup>. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

<sup>d</sup>. Carbon monoxide

<sup>e</sup>. Nitrogen dioxide (no short term standard)

**Table 5. Toxic Air Pollutant Emissions Rates Used for Modeling (Annual)**

Source (Id Code)	Location (UTM) <sup>a</sup>	Hourly Rate Used for Perlite 24-hour Modeling (lb/hr) <sup>b</sup>
		Perlite <sup>c</sup>
Reclaim System and Expander Baghouse (SRC20)	396232.8 4672337.5	1.15
Ore Unloading baghouse (SRC18)	396193.6 4672302.0	1.65
Ore Unloading – bottom (process fugitives) (SRC1)	396174.8 4672309.5	1.6
Ore Unloading –top (process fugitives) (SRC2)	396174.8 4672309.5	1.6
Ore Reclaim (process fugitives) (SRC3)	396222.4 4672352.0	1.8

<sup>a</sup>. Universal Transverse Mercator

<sup>b</sup>. Pounds per hour

<sup>c</sup>. Perlite emissions. PM<sub>10</sub> emissions are assumed to be 100% Perlite. PM<sub>10</sub> is Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

### 2.3.11 Emission Release Parameters

Table 6 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity. The parameters used in the model were those provided in electronic modeling files submitted by JBR with the exception of the expander baghouse stack temperature. The temperature used by JBR (1088.71° C) is consistent with the value reported in the permit application forms for the baghouse (1500° F). However, "Expanding Plant Calculations" in Appendix B shows an

explicit calculation of the gas temperature entering the baghouse as 329° F. Independent calculations by the Department during the engineering review resulted in an estimated temperature of 325° F, which supports the value in the Appendix and the value in the permit form was thus determined to be an error. The fact that the baghouse bags could not survive at the higher (1500° F) value also supported this change. The value in the Appendix calculations submitted by IM was used to revise the modeling.

### 2.3.12 Hour of Day Emission Factors

The modeling originally submitted for this facility utilized "Hour of Day" factors which serve to "turn on" emission sources for specific hours. The Reclaim system/Expander Baghouse emissions were "on" for eleven hours each day, while all ore unloading and ore reclaim process fugitive emissions were "on" for only 4 hours each day. Since early morning hours are included, which includes stable atmospheric conditions, the hour of day treatment is conservative and should be valid for any time of day. Thus, the original analysis was based on the assumption that the Expander Baghouse operates any 11 hours and the ore unloading and reclaim operations occur during any 4 hours of the day. Seven days a week, 52 weeks a year operation are also assumed.

The second analysis submitted by the facility was revised only by changing the hours of operation of the ore reclaim and expanding unit (i.e. the Expander Baghouse, SRC 18) from 11 hours to 24 hours per day. The hours of operation of all other sources remained at 4 hours per day, and the number of days of operation and all stack parameters remained unchanged, except that a corrected Expander Unit stack temperature of 329° F was used.

**Table 6. Emissions and Stack Parameters**

Release Point / Location	Source Type	Stack Height (m) <sup>a</sup>	Modeled Diameter (m)	Stack Gas Temp. (°K) <sup>b</sup>	Stack Gas Flow Velocity (m/sec) <sup>c</sup>
Ore unloading baghouse (SRC20)	Point	6.10	0.57	294	23.8
Reclaim system/Expander Baghouse (SRC18)	Point	5.49	0.73	438	5.71
Volume and Area Sources	Source Type	Release Ht. (m)	Initial $\sigma_y$ (m)	Initial $\sigma_z$ (m)	
Ore unloading-bottom, process fugitives(SRC1)	Volume	1.22	3.14	0.43 <sup>d</sup>	
Ore unloading-top, process fugitives (SRC2)	Volume	13.7	3.14	2.55	
Ore reclaim, process fugitives (SRC3)	Volume	4.57	.43	2.55 <sup>d</sup>	

a. Meters

b. Kelvin

c. Meters per second

d. Note, the Initial  $\sigma_z$  values for SRC1 and SRC3 were switched in the submitted modeling runs. DEQ corrected the switch to be consistent with the values indicated in the submitted modeling checklist.

## 3.0 MODELING RESULTS:

This Section describes dispersion modeling results from the full impact analysis and TAP analysis.

### 3.1 Significant and Full Impact Analysis Results

The applicant conducted a full impact analysis and did not conduct a separate preliminary significant impact analysis. The submitted modeling report based the 24-hour concentrations on the second highest predicted value during the highest-impact year, 1987, rather than the 6<sup>th</sup> highest value in 5 years as allowed according to EPA Modeling Guidelines. DEQ verified the analysis for the second highest value in 1987, and confirmed that the 6<sup>th</sup> highest 24-hour PM<sub>10</sub> concentration in 5 years would also not exceed the NAAQS. Results of the full impact analysis using the modified Expander Baghouse temperature



(329°F) and selecting the 6<sup>th</sup> highest PM<sub>10</sub> concentration in 5 years, are presented in Table 7 and Table 8.

Model results indicate that facility-wide emissions of PM<sub>10</sub> and nitrogen oxides from the 5 sources simulated in this analysis are lower than their respective National Ambient Air Quality Standards. All other criteria pollutants are expected to be less than significant impact criteria.

**Table 7. Criteria Pollutant Design Concentrations for Full Impact Analysis**

Pollutant	Averaging Period	Year	Design Concentration (µg/m <sup>3</sup> ) <sup>a</sup>	Receptor Location UTM <sup>b</sup>	
				Easting (m) <sup>c</sup>	Northing (m)
PM <sub>10</sub> <sup>d</sup>	24-hour	1991	58.9	396257	4672320
	Annual	1987	13.3	396257	4672320
Carbon Monoxide (CO)	1-hour	1991	14.6	396265	4672319
	8-hour	1991	7.3	396265	4672319
Sulfur Dioxide (SO <sub>2</sub> )	3-hour	N/A	N/A	N/A	N/A
	24-hour	N/A	N/A	N/A	N/A
	Annual	N/A	N/A	N/A	N/A
Nitrogen Dioxide (NO <sub>2</sub> )	Annual	1987	7.1	396257	4672320

<sup>a</sup> Micrograms per cubic meter

<sup>b</sup> Universal Transverse Mercator

<sup>c</sup> Meters

<sup>d</sup> Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

**Table 8. Full Impact Analysis Results**

Pollutant	Averaging Period	Total Ambient Impact <sup>a</sup> (µg/m <sup>3</sup> ) <sup>b</sup>	Background Concentration (µg/m <sup>3</sup> )	Total Ambient Concentration (µg/m <sup>3</sup> )	NAAQS <sup>c</sup> (µg/m <sup>3</sup> )	Percent of NAAQS
PM <sub>10</sub> <sup>d</sup>	24-hour	58.9	81	139.9	150	93%
	Annual	13.3	27	40.3	50	81%
Carbon Monoxide (CO) <sup>e</sup>	1-hour	14.6	Less than Significance Level		40,000	N/A
	8-hour	7.3	Less than Significance Level		10,000	N/A
Sulfur Dioxide (SO <sub>2</sub> ) <sup>f</sup>	3-hour	N/A	N/A	N/A	N/A	N/A
	24-hour	N/A	N/A	N/A	N/A	N/A
	Annual	N/A	N/A	N/A	N/A	N/A
Nitrogen Dioxide (NO <sub>2</sub> )	Annual	7.1	32	39.1	100	39%

<sup>a</sup> Impact from facility-wide emissions

<sup>b</sup> Micrograms per cubic meter

<sup>c</sup> National Ambient Air Quality Standard

<sup>d</sup> Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

<sup>e</sup> Carbon monoxide is below significance levels and is therefore not included in the full impact analysis.

<sup>f</sup> Sulfur Dioxide emissions are extremely low due to use of propane, so it is not included in the analysis.

### 3.2 Toxic Air Pollutants Results

Table 9 provides modeling results for TAPs. Maximum modeled concentrations of the TAP perlite are well below the 24-hour Acceptable Ambient Concentration of 500  $\mu\text{g}/\text{m}^3$ .

**Table 9 Toxic Air Pollutants Analysis Results.**

Pollutant	Year	Highest 24-hour Impact ( $\mu\text{g}/\text{m}^3$ ) <sup>a</sup>	ACC <sup>a</sup> ( $\mu\text{g}/\text{m}^3$ ) <sup>b</sup>	Impact Exceeds AAC?	Receptor Location (UTM) <sup>c</sup>	
					Easting (m) <sup>d</sup>	Northing (m)
Perlite	1987	90.0 <sup>e</sup>	500	No	396257.5	4672320

<sup>a</sup> Acceptable ambient concentration

<sup>b</sup> Micrograms per cubic meter

<sup>c</sup> Universal Transverse Mercator

<sup>d</sup> Meters

<sup>e</sup> Assumes all PM<sub>10</sub> is Perlite.

Electronic copies of the modeling analysis are saved on disk. Table 10 provides a summary of the files used in the modeling analysis. The Permit Writer has reviewed this modeling memo to ensure consistency with the PTC and technical memorandum.

**Table 10 Dispersion Modeling Files**

Type of File	Description	File Name
Met data	Surface data from Pocatello, Idaho	Poc87_91.ASC – 5 year file
	Upper air data from Salt Lake City.	PocXX.ASC Annual files
	NWS data: January 1987 – December 1991	XX = year of met data
BEEST input files	24-hour or shorter averaging periods	Idmin-DEQ_87_91Pollutant.BST
	Annual criteria pollutant (NOx and PM10)	Idmin-DEQ-annual_XXpollutant.BST;
		XX = year of met data
Each BST file has the following type of files associated with it:		
	Input file for BPIP program	.PIP
	BPIP output file	.TAB
	Concise BPIP output file	.SUM
	BEE-Line file containing direction specific building dimensions	.SO
	ISCST3 input file for each pollutant	.DTA
	ISCST3 output list file for each pollutant	.LST
	User summary output file for each pollutant	.USF
	Master graphics output file for each pollutant	.GRF
Some modeling files have the following type of graphics files associated with them:		
	Surfer data file	.DAT
	Surfer boundary file	.BLN
	Surfer post file containing source locations	.TXT
	Surfer plot file	.SRF

## **APPENDIX D**

**Idaho Minerals, Malad City  
Tier II Operating Permit No. T2-020312**

**Tier II OP Fee Calculations**

## Tier II Fee Calculation

### Instructions:

Insert the following information and answer the following questions either Y or N.

Insert the permitted emissions in tons per year into the table. TAPS only apply when the Tier II is being used for New Source Review.

Company: Idaho Minerals, LLC  
Address: P.O. Box 162, 100 Hess Drive  
City: Malad City  
State: Idaho  
Zip Code: 83252  
Facility Contact: J. Marvin Hess  
Title: Manager  
AIRS No.: 071-00008

N Did this permit meet the requirements of IDAPA 58.01.01.407.02 for a fee exemption Y/N?

N Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N

N Is this a synthetic minor permit? Y/N

Emissions Inventory	
Pollutant	Permitted Emissions (T/yr)
NO <sub>x</sub>	0.0
PM10	0.0
PM	3.5
SO <sub>2</sub>	0.0
CO	0.0
VOC	0.0
HAPS/TAPS	
Total:	3.5
Fee Due	\$ 2,500.00

Comments: Tier II operating permit processing Fee.

## **APPENDIX E**

**Idaho Minerals, Malad City  
Tier II Operating Permit No. T2-020312**

**Response to Public Comments**

**Response to Public Comments  
Submitted During the Public Comment Period  
for the Idaho Minerals, LLC, Malad City, Tier II Operating Permit  
T2-020312  
AIRS Facility No. 071-00008**

As required by IDAPA 58.01.01.404.01.c of the *Rules for the Control of Air Pollution in Idaho (Rules)*, the Idaho Department of Environmental Quality (Department) provided for public notice and comment, on the proposed Tier II Operating Permit to Construct (Tier II OP) No. T2-020312 for the Idaho Minerals, LLC, located in Malad City. Public comment packages, which included the application materials, the proposed permit and associated technical memorandum were made available for public review at the Department's Pocatello Regional Office, the Pocatello Public Library, and the Department's state office in Boise. The public comment period for the Tier II OP was provided from May 23, 2003, through June 23, 2003.

The only party that provided comments during the public comment period was the Idaho Minerals, LLC. This document provides the Department's responses to the comments submitted. Each comment is listed below with the Department's response immediately following.

**Comment No. 1.**

Idaho Minerals, LLC is submitting comments to the draft Tier II Permit T2-020312. Idaho Minerals is requesting that the draft permit be revised to eliminate Permit Condition 4.4, Hours of Operation Limits, for the ore reclaim and expander systems, as no restrictions on hours of operation are required. Idaho Minerals finds daily and annual throughput limits of Permit Condition 4.4 acceptable, and believes these are the only restrictions required for the reclaim and expander units.

Idaho Minerals has enlisted JBR Environmental Consultants, Inc., to perform new modeling, which shows that the ore reclaim and expanding unit can operate 24 hours per day and meet the National Ambient Air Quality Standards.

An updated modeling report is enclosed, including the modeling files. Please feel free to contact me at (208) 766-4054 if you have further questions, or contact Daniel Heiser of JBR at 853-0883.

Sincerely,  
Idaho Minerals, LLC

J. Marvin Hess  
Manager

**Response to Comment No. 1**

The Department revised the proposed Tier II OP No. T2-020312 to reflect this comment. The hours of operation limit existed in the proposed Tier II OP was deleted from the permit based on a second modeling conducted by the permittee for the ore reclaim and expander systems. The Department reviewed the second modeling results and verified that the modeling results demonstrated compliance with PM<sub>10</sub> NAAQS.

For more information on the modeling results, please refer to the modeling submitted by Idaho Minerals and the Department's Technical Services memo which has a review of the model.